

PCTWORLD INTELLECTUAL PROPERTY
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER

WO 9607151A1

(51) International Patent Classification⁶ :

G06F 17/60

A1

(11) International Publication Number:

WO 96/07151

(43) International Publication Date:

7 March 1996 (07.03.96)

(21) International Application Number: PCT/US95/10716

(22) International Filing Date: 23 August 1995 (23.08.95)

(30) Priority Data:

08/298,124

30 August 1994 (30.08.94)

US

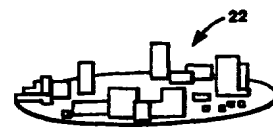
(71) Applicant: LOCAL VILLAGES INCORPORATED [US/US];
196 Boston Avenue, Medford, MA 02155 (US).(72) Inventor: KUSMAUL, J., Wesley; 160 Sharon Street, Med-
ford, MA 02155 (US).(74) Agents: McKENNA, John, F. et al.; Cesari and McKenna, 30
Rowes Wharf, Boston, MA 02110 (US).(81) Designated States: AM, AU, BB, BG, BR, BY, CA, CN, CZ,
EE, FI, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT,
LV, MD, MG, MN, MX, NO, NZ, PL, RO, RU, SI, SK,
TJ, TT, UA, UZ, VN, European patent (AT, BE, CH, DE,
DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI
patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE,
SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).**Published***With international search report.**Before the expiration of the time limit for amending the
claims and to be republished in the event of the receipt of
amendments.*(54) Title: A TECHNIQUE FOR DETERMINING RESOURCE USAGE VALUES IN A SYSTEM THAT PRESENTS ON-LINE
COMPUTER SERVICES AS NAVIGABLE VIRTUAL SPACE

(57) Abstract

A system for assessing to tenants fees for renting system resources of an on-line computer system, charging rental rates that correspond to the amounts and types of resources utilized. The system presents tenant services and products to end users as a navigable "virtual village", in which tenants rent "space" in village "buildings". The space is quantified by the system provider as a number of "square bytes", that represent the system resources required to make available to a predetermined number of end users certain features associated with categories of space - i.e., offices, stores, conference rooms and so forth. The system determines for each tenant an applicable price per square byte based on a number of village factors and/or building factors. The village factors include the potential for exposure of the space and/or the tenant's name to end users entering the village, and the number of layers of graphics or menus an end user must go through to reach the tenant's space from the main village menu or graphic. The system sets a basic price per square byte for standard office or store space within the village based in part on these factors. The system then considers the building factors, such as the potential for exposure of the tenant's space to an end user entering the associated building, any special features offered by the tenant to end users entering its space, and any other factors as the system provider may determine. Based on these building factors, i.e., the underlying resources associated therewith, the system sets a price for the tenant, above the basic price. At the end of each rental period, the system determines the system resources that were utilized by each tenant, measured in terms of square bytes. It also determines, based on the amounts and types of system resources utilized, a price per square byte. It then charges the tenant rent for that period, determined by multiplying the square bytes utilized by the price per square byte.

ENTERTAINMENT
VILLAGECOMPUTER
VILLAGE

VILLAGE OF NEW YORK

ARMED SERVICES
VILLAGEMEDICAL
VILLAGE

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

**A TECHNIQUE FOR DETERMINING RESOURCE USAGE VALUES IN A SYSTEM
THAT PRESENTS ON-LINE COMPUTER SERVICES AS NAVIGABLE VIRTUAL
SPACE**

FIELD OF THE INVENTION

5 The invention relates generally to computer systems and more particularly to systems for providing, on-line computer services or facilities to organizations and/or to end users, in terms of a navigable, virtual space model of physical facilities.

10 **BACKGROUND OF INVENTION**

15 Providers of commercial on-line computer services used by consumers and business people have in the past used the metaphor of real estate to make their services more easily navigable by their users. Thus, the end user of an on-line computer service might see names, or visual representations, of buildings and streets on the computer screen, either depicted graphically as a map or listed as a menu. The user then
20 travels down the "streets" or into the "buildings" in search of information or services. In such systems, a source of retrievable information may be represented or listed as a library, a place for public exchange of messages may be represented or listed as a meeting room, bulletin board, or
25 conference center, and a private message exchange or electronic mail may be represented or listed as a post office. These representations are "virtual" real estate, since they appear to a user to exist in physical space, but they actually do not, existing only in the memory and central processing unit(s) of

-2-

the on-line service. The memory and central processing units may be part of a centralized system host and/or may be included in the terminals through which the users access the on-line services.

5 Providers of these on-line services typically charge connection and use fees to the end users, i.e., customers, and treat the display space on the computer screen, when used for commercial purposes, as advertising space, or virtual billboards. This is analogous to charging an admission price
10 to, for example, a shopping mall or the main street of a town. Such a fee structure essentially discourages end users from spending time in the libraries, conferences or meeting rooms and so forth. Further, it inhibits the end users from exploring, or window shopping, in the virtual communities,
15 which limits the advertisers' access to the customers.

 Navigation from building to building in virtual communities is performed using key strokes, moving a mouse or using other pointing devices to indicate desired "movement." It is thus almost instantaneous. Accordingly, advertising
20 passed along the way is easily ignored. Further, since a customer pays for time spent in the virtual community, or village, the customer is essentially rewarded for avoiding the virtual billboards. The billboards are thus not particularly effective advertising for the vendors, which limits the price a
25 system operator can charge for the billboard space. The system operator thus has to charge the end users more to cover the costs of operating the system, which further discourages the end users from exploring the villages.

 What is needed is the system that presents commercial
30 services to end users as a navigable community of stores and offices and so forth, and charges the associated costs to those who are "resident" in the community, i.e., the vendors who have stores or offices therein or the tenants who maintain private facilities therein.

35

SUMMARY OF INVENTION

The invention is a system for assessing to vendors and the tenants of private facilities fees for renting space in a "virtual village", i.e., utilizing underlying system resources, by determining how much of the underlying systems resources are utilized by each vendor and each tenant and also setting rental rates for each vendor and tenant based on the types and amounts of resources utilized. The system sets these fees to cover the costs of operating all or parts of the system, and thus, customers are not charged fees to enter or remain within the village. The term "tenant" is used hereinafter to refer both to vendors and to private tenants.

More specifically, the system associates with each tenant certain categories of rentable virtual space - i.e., an office, a store, a conference room and so forth. These rentable spaces represent the underlying system resources required to provide to end users, or customers, the features associated with each category of space. For example, a conference room represents the system resources required to hold a real time, interactive session involving up to a predetermined number of people. A store represents the system resources required to make available to a customer a catalog with up to a predetermined number of items, electronic ordering services, and an interactive session with a sales person.

The space is "measured," or quantified, in terms of "square bytes," which are somewhat analogous to square feet in physical space. A tenant is thus charged for the square bytes associated with the "kind" and "size" of the space it rents, where "kind" translates to the types of resources utilized and "size" translates to the amounts of the various system resources utilized. For example, a tenant who rents a conference room actually rents use of the telephone line connectors, processing capabilities, disk space, memory and

other resources that are necessary to hold a real time interactive session. These resources are quantified by the system provider and expressed in terms of "square bytes," which the tenant rents at an applicable price per square byte.

5 The system determines the applicable price per square byte charged to a particular tenant based on a number of factors, such as the potential for exposure of commercial space and/or the tenant's name to customers, the number of layers of graphics or menus an end user must go through to reach the
10 tenant's space from the main village menu or graphic, and any special features of the tenant's space. Specifically, the system monitors "visits" to the virtual village, determines how accessible the rented space is to the visitors, and may factor in such other features as the system operator may wish to
15 consider in determining a basic price per square byte. It then sets a basic price per square byte for standard office or store space. The system may also determine what special features are offered to end users by the tenant and set a price for that tenant, above the basic price, based on the resources utilized
20 to make these features available. The system also keeps track of the number of customers that "enter" the tenant's space and, if the number exceeds the capacity of that space, assigns additional space to the tenant, based on availability. The tenant space is thus somewhat flexible, expanding as
25 appropriate, to accommodate customers.

At the end of each rental period, the system determines the system resources that were utilized by each tenant, measured in terms of square bytes. It also determines, based on the amounts and types of system resources utilized, a price
30 per square byte. It then charges the tenant rent for that period, determined by multiplying the square bytes utilized by the price per square byte.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and further advantages of the invention may be better understood by referring to the following description in conjunction with the accompanying drawings, in which:

Fig. 1 depicts, in block diagram form, a system for providing to a customer one or more virtual villages;

Fig. 2 depicts a display of virtual villages provided by the system of Fig. 1;

Fig. 3 depicts a display of a selected village provided by the system of Fig. 1;

Fig. 4 depicts a display of streets and various buildings of the selected village of Fig. 3;

Fig. 5 depicts a menu of a building selected from the streets and buildings displayed in Fig. 4;

Fig. 6 depicts a display of a selected retail space within the building displayed in Fig. 5; and

Fig. 7 depicts in more detail a rent controller which is part of the system of in Fig. 1.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Fig. 1 depicts an on-line computer system 10 that offers commercial products and services to end users, or customers, via the use of representations of navigable space in virtual villages. The system 10 consists of a host 12, terminals 14 with modems 14a or network cards 14b, and a rent controller 16. The host 12 includes memory 18 and processors 20 that are capable of communicating, over lines 21, with the various terminals 14. Peripheral systems, such as disk drives 18a may provide additional memory to the host 12. The terminals 14 may be personal computers, network stations on local-area networks, interactive television sets and so forth. As discussed in more

-6-

detail below, a customer uses a terminal 14 to "enter" a virtual village and "visit" stores or offices, to transact business with the individual tenants. The customers may also enter conference centers, libraries or post offices to gather information, communicate directly with other customers, and so forth. Software resident on an end user's terminal or network server may be accessed by the host 12, to enable the end user to enter into the village and "travel" therein.

A VIRTUAL VILLAGE

The system 10 organizes the tenants into one or more virtual villages, where a village may be organized around a subject matter, for example, entertainment. An entertainment village might include music companies, record stores, film companies, and entertainment-related information and services.

Each village includes multiple districts, such as a retail district, a commercial district, an educational district and so forth. These districts essentially provide the "spaces" where end users meet, communicate and transact business through their terminals 14. The terminals 14 make possible rapid and easy access to these spaces, and the village plan provides a logical, familiar organizational framework for both the end users and the tenants. To promote commercial activities within a village, the end users are not charged fees to enter or to remain within a village.

AN END USER'S JOURNEY INTO A VIRTUAL VILLAGE

When an end user logs on to the system 10, the system displays to the end user, via the end user's terminal 14, a single virtual village 22 or a selection of virtual villages 22, as depicted in Fig. 2. The villages are depicted either graphically, as shown in the drawing, or as menu listings. The end user, as necessary, selects one of the villages 22 and the system 10 displays to the end user a multiple-district

-7-

representation of the selected village either graphically, as shown in Fig. 3, or by menu. The end user next selects one of the districts 24 and the system displays by menu or graphically, as shown in Fig. 4, the streets 26, office buildings 28, retail buildings 29, public buildings such as libraries 30, convention centers 31, and schools (not shown), and so forth that are associated with the selected district. The end user then selects a street 26 or building 28-31 and the system again alters the display, to present to the end user, for example, a selected building, either graphically or, as depicted in Fig. 5, by menu.

The end user may then explore the various shops 38, or attend meetings in the offices 40 that are associated with, that is, "rent space in," the selected building, "traveling" to various floors using elevator menus 42 or along corridors using corridor menus 44. When the end user visits, or enters, a selected shop 38, the system displays to the end user the associated tenant's reception area or whatever the tenant has established to greet an end user. When the end user visits a selected office 40, the system determines if the end user is authorized to enter the office, for example, to attend a scheduled meeting. The system thus performs the screening functions of an office receptionist.

If the end user selects a music store, for example, the end user may be greeted by a list 44 of the types of items available through that store and also by a menu 46 for selection of one of the services offered by the tenant, as depicted in Fig. 6. Such services may include an interactive session with a salesperson, a more detailed listing of the various items sold by the tenant, i.e., a catalogue, a mail service for placing orders, and so forth. When the end user selects a service from the menu 46, the system 10 (Fig. 1) alters the display appropriately. The end user's interaction with the virtual space and with the tenant is thus conducted

somewhat like an actual visit to a music store - with the end user deciding the amount and type of interaction. The end user may look at the display window, browse through the catalogue, purchase and receive downloadable recordings, order musical instruments and accessories, and/or engage in a "conversation" with a salesperson.

If the end use instead selects music company executive offices 40 the end user may be greeted by a list of available rooms. The end user then selects a room, for example, a conference room in which a conference is scheduled and is either given or denied access. If the end user is given access, i.e., if he or she is on a list of attendees, a menu of available services is displayed. These services may include access to (i) a library of documents, (ii) an announcements board, (iii) a searchable message data base, (iv) an attendee list with individual profiles, and so forth.

The end user then selects a service from this menu and the system 10 (Fig. 1) displays the information and/or menus appropriate for using the selected service. When the scheduled conference starts, the end user "meets" interactively with the other attendees. During the conference or afterward, the attendees may exchange and listen to downloadable pieces of music, communicate with music stores within the village or outside of the village, i.e., physical stores, and so forth, using communication facilities available within the company offices 40.

THE TENANT'S VIRTUAL SPACE

As discussed earlier, tenants are charged rent for their use of system resources associated with presenting their virtual space and, in part, the entire virtual village, to the end users. For example, a tenant utilizes system memory or disk space to store the information presented to an end user that visits the tenant's space. Also, the tenant utilizes

system processing resources and telephone line connections to accommodate end users, take orders, ask and answer questions, and so forth. The system resources that are associated with the space are quantified by the system provider and expressed in terms of a corresponding number of "square bytes." The music store owner, for example, rents a store that includes as standard features a "display window", or greeting, and a "catalogue", or show room, containing listings for up to a predetermined maximum number of items, a "mail service" for placing orders, and an interactive session with a salesperson. All these features and services involve the use of a predetermined amount of the system's resources, which are expressed as a corresponding number of square bytes.

A tenant may permanently rent or temporarily reserve space that offers features not available in the standard office or store space. For example, the tenant may reserve space to hold a relatively large multi-party interactive session, or conference. The resources necessary for such a conference are grouped into a rentable conference room, which corresponds in the system to an appropriate number of square bytes.

The tenant rents the space, i.e., the underlying system resources, by paying for this number of square bytes at the rates set by the rate controller 16 (Fig. 1). Knowing the number of square bytes that corresponds to a particular service and the price per square byte, the tenant can weigh the cost of offering the service against an expected increase in sales, to determine if the investment is worthwhile from a business point of view.

FLEXIBLE VIRTUAL SPACE

As discussed above, the system 10 may have excess capacity, which is available should a tenant need temporarily to expand its use of system resources to handle an unexpected number of end users or to handle an impromptu conference. If,

for example, the tenant requires the resources of an additional store to accommodate end users, the system temporarily assigns this space to the tenant, assuming the underlying resources are then available, i.e., that they are not then in use by another tenant. The tenant pays for the use of these temporarily occupied spaces in terms of the corresponding number of square bytes.

SYSTEM RESOURCES "MEASURED" IN SQUARE BYTES

As discussed above, the system of Fig. 1 assigns a number of square bytes to various categories of space, or rooms, in a virtual building. These square bytes represent a "measurement" of the system resources, i.e., memory, processing cycles and so forth, used to present to an end user the rooms and all their functionality.

The total space available on a system is defined by the capabilities and features of the host and the software resident on the host. All space is essentially based on a combination of the following features: interactive and non-interactive forums (public or private); file transfer (uploading or downloading); surveys (questions and answers); and E-mail facilities; screen information presentation facilities; search facilities (catalogs, items, listings, etc.). On-line stores, for example, are built by combining features such as screen information presentation, file transfer, surveys, search facilities and E-mail. Each one of these features essentially utilizes a known amount of the system resources, to handle up to a predetermined number of end users. Accordingly, a combination of the features can be assigned a predetermined number of square bytes.

In an illustrative embodiment of the system there are eight kinds of "space" that can be rented by a tenant. Each kind of space is associated with a particular measurement of a square byte, since each includes varying amounts of memory,

-11-

access to telephone lines and/or processing capabilities. The eight types of space are:

- a. lobby or entry foyer - the files set up to greet an end user entering the tenant space - each 5 bytes in such files equals 1 square byte;
- b. conference room - the system resources required to allow a predetermined number of people to communicate simultaneously - each conference room equals 2,000 square bytes;
- c. meeting room - the system resources required to store asynchronously messages and information that can be accessed by an end user at any time - each 100 bytes of stored messages and information equals 1 square byte;
- d. personnel office - the system resources required to list in member directory files individuals accessible through a particular tenant - each 20 bytes in such member directory files equals 1 square byte;
- e. editorial office - the system resources required to prepare and offer newsletters, news wires and other information products - each 50 bytes of stored information equals one square byte;
- f. library - the system resources required to archive and retrieve information - each 500 bytes of archived information equals 1 square byte;
- g. polling room - the system resources required to gather and store information from visiting end users - each 20 bytes of stored information equals 1 square byte;
- h. work spaces - the system resources required to accommodate files that may be transferred to and edited by those with appropriate access privileges - each 500 bytes equals 1 square byte.

In addition to these building spaces, tenants may rent space on a billboard that is displayed each time an end user

navigates past its location in the village; space in an exhibition hall or convention center when a show is being staged, and so forth. Standard sizes of these spaces are also expressed in terms of corresponding numbers of square bytes.

5

RENT

The system determines the price per square byte charged to a tenant based on a number of village-related and/or space-related factors, some of which are discussed below.

10

BASIC PRICE PER SQUARE BYTE

Each village intrinsically has certain features that attract end users, and, in particular, attract end users who are of interest to specific tenants. For example, a village consisting of tenants that sell products and services related to a new, highly specific technology, presumably attracts more end users interested in this new technology than does a village consisting of tenants that sell less specialized products and/or services. Accordingly, space in the specialized village may be more valuable, and thus, have associated with it a higher basic price per square byte than does space in the less specialized village.

15

20

If a tenant does not require any special services from the system manager, other than the assignment to it, as needed, of various standard size conference rooms and meeting rooms and so forth, its rent is determined by (i) calculating the number of square bytes reserved to it and temporarily assigned to it over a specific rental period, and (ii) multiplying that number by the price per square byte associated with the particular village, which is the basic price modified in accordance with applicable base price modifiers, as discussed below.

25

30

BASIC PRICE MULTIPLIERS

A. The Village Factors

5 A tenant pays more for retail space in a village that is selected, or entered, by a large number of end users. If a particular village is popular with end users, it is likely that a tenant renting retail space in this village will be seen by more end users, and thus, attract more business. The system does not charge per end user visit for up to a predetermined number of visits to an individual tenant's space, i.e., for the number of times end users display the tenant's information, or for the time that any end user remains in a tenant's space. 10 Instead, the system includes in the rent a *Market Condition Factor*, which is based on the number of visits per month to the entire village.

15 A tenant pays also for the accessibility of its retail space, i.e., how few layers of menus or graphics an end user must go through from the main village graphic or menu to get to the space. For example, a tenant who rents a store that has its name included in a graphic or menu that is displayed when an end user selects or visits a particular district of the village pays more per square byte than does a tenant who is not 20 included on this graphic or menu. The system thus includes in the rent an *Accessibility Factor* that varies inversely with the number of intervening layers between the rented space and the main village graphic or menu.

25 The Village Factors affect only tenants who rent retail space where visibility to "street traffic" is important to business. Tenants who rent private facilities such as office space use screening functions essentially to keep out end users who are not specifically invited, i.e., previously authorized, to enter the space.

30 B. The Building Factors

Every tenant pays for amenities, such as special signs or logos that are displayed within or between the building graphics or menus, hidden menus accessible from a tenant's

space by selected end users, and so forth. The system thus includes in the calculation of rent an *Amenity Factor*. Further, a tenant pays a premium for a location with better "exposure," such as a preferred position on the various building menus. For example, a tenant who desires to appear first on the menu of occupants of a particular floor of a building will pay a premium over those tenants who are listed further down the menu. This premium is included in the rent calculation as an *Exposure Factor*.

The tenant pays also for "customizing" the space, to offer therein certain features or services that are not offered over the entire system. For example, a tenant who sells kitchen cabinets may make available to an end user the use of a CAD system that aids in designing kitchens. To make this available, the tenant requests that the system offer a mechanism by which an end user can communicate with the CAD system. The tenant pays for the services of the system manager in providing such a mechanism via the inclusion in the rent calculation of a *Build-Out Factor*.

C. Services

A tenant pays also for services such as "maintenance," i.e., the periodic archiving of old messages, editorial assistance, and so forth, on an as-used basis. The system reflects these services in the rent as an *Ancillary Services Fee*.

D. Miscellaneous

The system provider may also use other factors in the setting of rent. For example, the system may include in the rent a percentage of the price of goods and services sold through the system.

CALCULATION OF RENT

Referring now to Fig. 7, the rent controller 16, through a data base 50, associates each tenant with a selected village and with the category and amount of space, i.e., system resources, selected by the tenant. As discussed above, the tenant selects retail space or office space and, also, associated rooms such as a meeting room, a conference room and so forth. These selections determine how the host 12 (Fig. 1) displays the tenant's space to end users and what features are made available to all or selected end users. The rent controller 16, through the data base 50, associates with the tenant a number of square bytes corresponding to the categories and sizes of the spaces selected by the tenant, based on information received from the host. The controller 16, for example, associates with a tenant (i) 50 square bytes for a selected standard-size office, (ii) 2000 square bytes for a conference room, and so forth.

The tenant may select different "grades" of office space, with lower grades essentially accommodating fewer people per rent period than the higher grades. The data base 50 then associates with the tenant a basic price per square byte, which is determined by the village selected and the category, amount, and grade of the space selected.

In any given month, a tenant may also reserve for its exclusive use and for a selected period of time communal space such as a shared conference room in the building or a shared meeting room therein. The rent controller 16, through the data base 50, keeps track of this reserved space by including, in the square byte calculation for the tenant, the square bytes attributable to this temporarily reserved space.

As discussed above, a tenant's space is flexible - it may expand to accommodate additional end users, assuming the system has excess capabilities that are both unused and unreserved. The rent controller 16, through data base 50, must thus keep track of the expansion of the tenant's space, associating with

-16-

the tenant the number of square bytes utilized. If, for example, the tenant holds a conference that exceeds the capabilities of one conference room, the system assigns to the tenant a second conference room, to handle the overflow. The tenant thus pays for 2000 + 2000, or 4000, square bytes for the time in which both of the conference rooms are in use.

The controller 16 next, through processor 52, associates with each tenant the appropriate basic price multipliers. For tenants of retail space, the system determines, from information supplied to it from the host, how many layers of graphics or menus separate the first graphic or menu in which the tenant is included from the main village menu and sets the *Accessibility Factor* accordingly. The fewer layers, the higher the *Accessibility Factor*. This is analogous to setting the rent higher for space in the "better" locations of an actual village. The controller sets the *Accessibility Factor* between 1, for lowest accessibility, and 2, for highest accessibility, as appropriate.

The processor 52 next sets for every tenant the *Exposure Factor*, by associating with the tenant the factor that corresponds to the tenant's visibility within its selected building. The controller sets the factor high if the tenant is included in the first graphic or menu that an end user sees when he selects the building, sets the factor higher if the tenant is given a primary position within that graphic or menu, and so forth. Conversely, the controller sets the factor low if the first graphic or menu that includes the tenant is associated with a particular floor of the building. The *Exposure Factor* is set between 1, for the lowest exposure, and 2, for the highest exposure.

The processor 52 next sets the *Amenity Factor* to a value between 1 and 2 that corresponds to the amenities utilized by the tenant, such as, special signs or logos displayed in the building graphics or menus, hidden menus accessible from a tenant's space, and so forth.

-17-

The processor 52 then determines if the tenant has a special feature that is not generally available over the system, i.e., a custom build-out. If not, the system sets the Build-Out Factor to 1. Otherwise, the system increments the Build-Out Factor, based on the tenant's use of system resources to provide access to this special feature.

The controller 16, through processor 52, has thus set all the basic price multipliers that are based on selections made by the tenant. The controller 16 also monitors the number of end users visiting each village and processor 52 sets for each village an associated *Market Condition Factor* based on this number. In the preferred embodiment, the system sets the factor to 1 for 1000 visits per rent period, and increments the factor by .05 for an additional 1000 visits and by .01 for each additional 1000 visits.

The system manager may also add in multiples that relate specifically to particular tenants or to use of particular resources, as appropriate.

After setting the factors, the controller sums them in summer 54, to determine a total basic price multiplier for the tenant. It then multiplies, in multiplier 56, the basic price by the total basic price multiplier to set the price per square byte.

The controller 16 next determines from data base 50 the total number of square bytes associated with the tenant over the rental period. It then, in multiplier 54, multiplies this number by the price per square byte determined previously. Next, in summer 52, it adds to the product any *Ancillary Service Fees* attributable to the tenant, to determine a total rent for this period for the tenant's office or retail space.

The controller 16 also determines if the tenant has rented a standard amount of space on one or more billboards or kiosks. If so, the system determines for each where the billboard or kiosk is located in the village and the expected exposure of

the space, i.e., how many times end users visited the particular section of the village in which the billboard or kiosk is located. It then sets prices for the billboard or kiosk spaces in terms of visibility, by charging a certain price per predetermined number of end user visits.

The controller 16 also determines the number of square bytes attributable to exhibition space in a conference center. The controller sets a price for this space that is higher per square byte the standard office space, since this space includes more features.

The summer 54 then adds the charges for the billboard, kiosk and/or convention center spaces to the rent calculation for the building space, to determine a total rent for the tenant's use of system resources.

The rent controller 16 thus readily and equitably determines the total rent for each tenant based on the system resources utilized by that tenant. As discussed above, the rent controller may also include in the rent a percentage of the price of products or services sold through the system, as appropriate. The rent from the tenants pays for the operation of the system, and thus, end users are not charged fees to enter or remain in the villages.

The foregoing description has been limited to a specific embodiment of this invention. It will be apparent, however, that variations and modifications may be made to the invention, with the attainment of some or all of its advantages. Therefore, it is the object of the appended claims to cover all such variations and modifications as come within the true spirit and scope of the invention.

CLAIMS

1. A system for assigning to a tenant available resources of a on-line computer system and charging the tenant for the resources utilized, the system including:

A. a host for establishing through user terminals virtual villages that include virtual spaces that are reservable by tenants, the spaces representing features and services available to end users;

B. a data base for associating each of the spaces with a number of square bytes, the number of square bytes corresponding to the system resources required to provide the features and services associated with the space, the data base associating each of the spaces also with a tenant;

C. a rent controller for determining a price per square byte to be charged to the tenant, the rent controller multiplying the number of square bytes associated with the tenant by the price per square byte to be charged to the tenant.

2. The system of claim 1, wherein the rent controller includes means for counting for each virtual village a number of end users selecting a particular virtual village, said means incrementing a market condition factor if the count is above a predetermined threshold, the rent controller including the market condition factor in determining a price per square byte to be charged to each of the tenants that reserve space in that particular village.

3. The system of claim 2, wherein the rent controller further includes means for determining uses of specialized system resources by each of the tenants, said means associating with each tenant that utilizes these resources a build-out

factor, the rent controller including the build-out factor in determining a price per square byte to be charged to each of these tenants.

5 4. The system of claim 3, wherein the rent controller includes means for determining for each tenant the uses of selected system promotional service resources, the rent controller associating with each tenant utilizing the resources an amenities factor corresponding to the use of these selected
10 system promotional service resources, the rent controller including the amenities factor in determining a price per square byte to be charged to each of these tenants.

15 5. The system of claim 4, wherein the rent controller includes means for determining for each tenant utilizes selected exposure enhancing resources to promote its space, the rent controller associating with each tenant utilizing these resources an exposure factor, the rent controller including the exposure factor in determining a price per square byte to be
20 charged to each of these tenants.

25 6. The system of claim 5, wherein the rent controller includes means for determining for each tenant uses of selected system information maintenance service resources, the rent controller associating with each tenant an ancillary service fee corresponding to the use of the selected system information maintenance service resources and incrementing the ancillary service fee for a particular tenant when the tenant utilizes these resources in a rental period, the rent controller
30 including the ancillary service fee in determining of a price per square byte to be charged to each of these tenants.

7. The system of claim 1, wherein the data base associates with each tenant the space that the tenant

temporarily reserves, the data base associating with the tenant a corresponding number of square bytes for any rent period in which the tenant reserves this space.

- 5 8. The system of claim 7, wherein the data base associates with each tenant the space that the host temporarily assigns to the tenant to accommodate a number of end users that exceeds the capacity of the space previously reserved by the tenant.

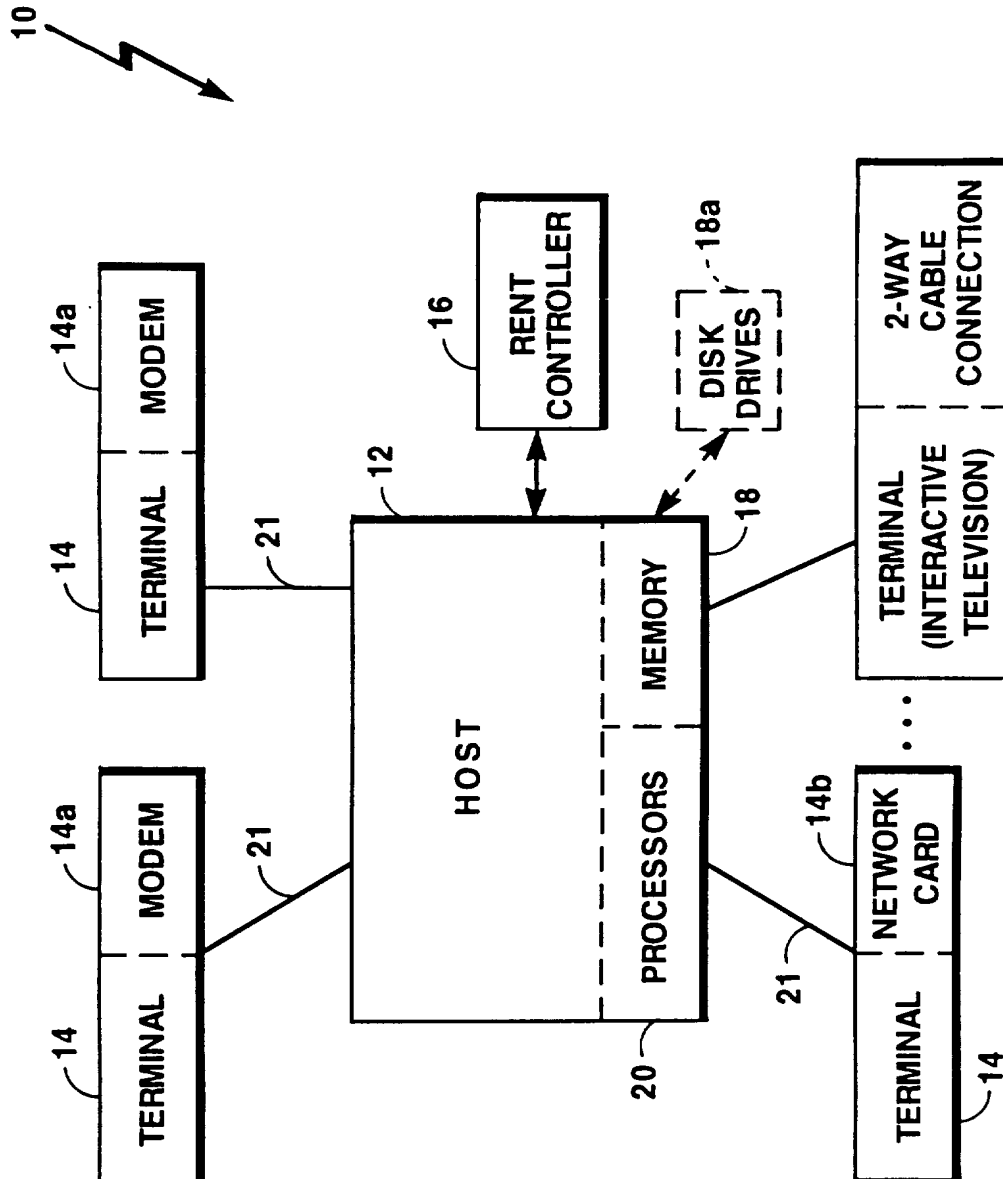
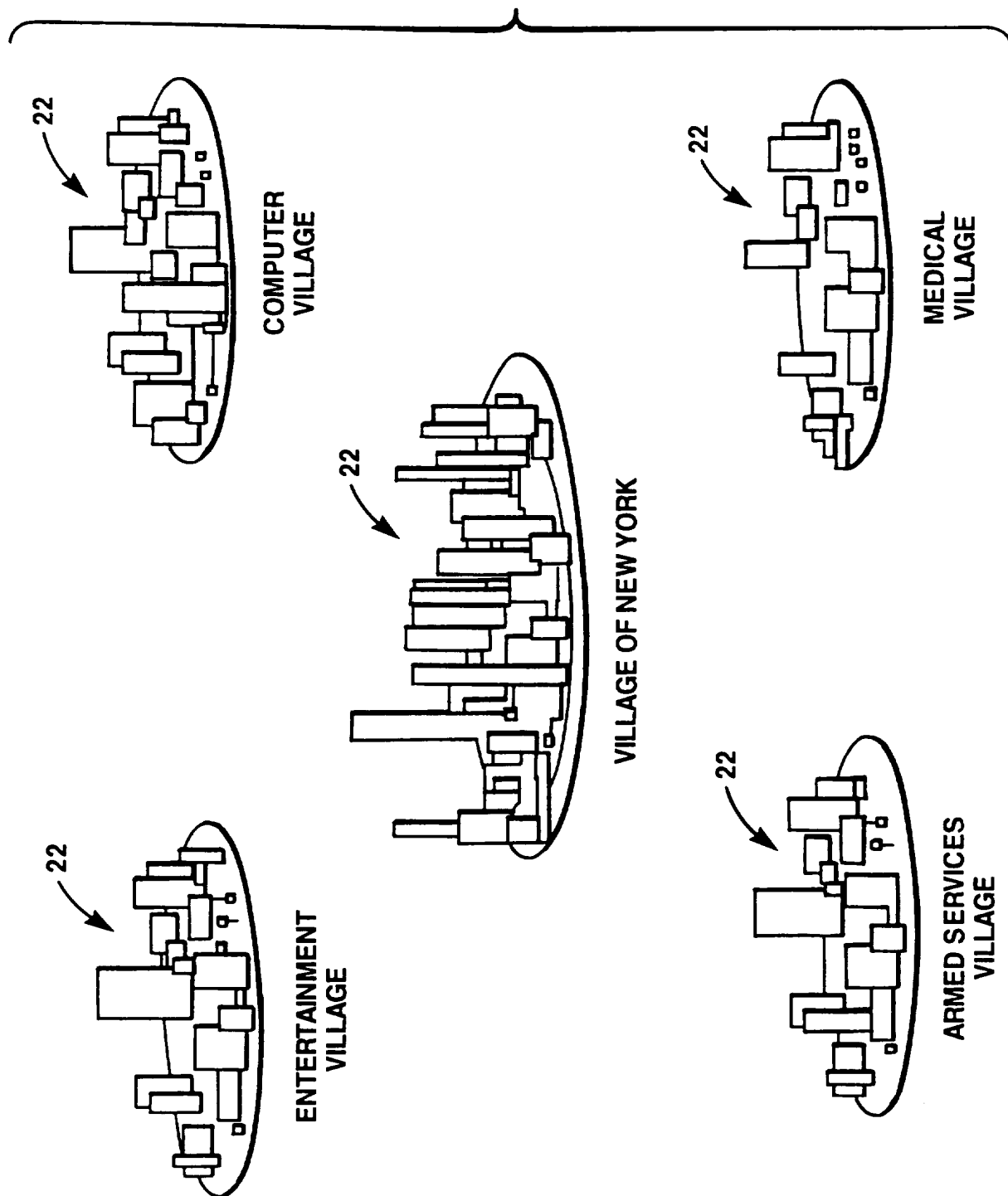


Fig. 1

Fig. 2



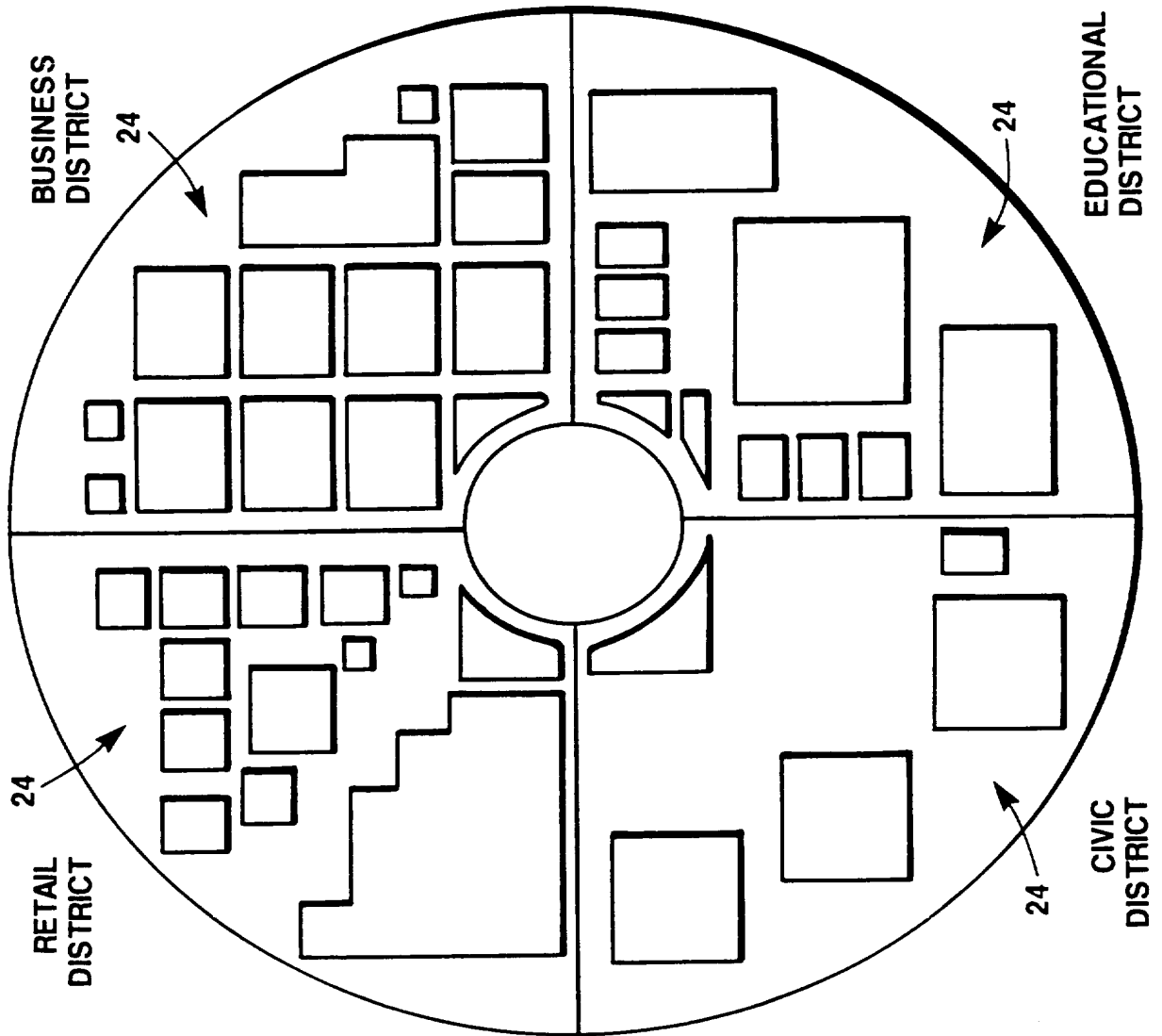


Fig. 3

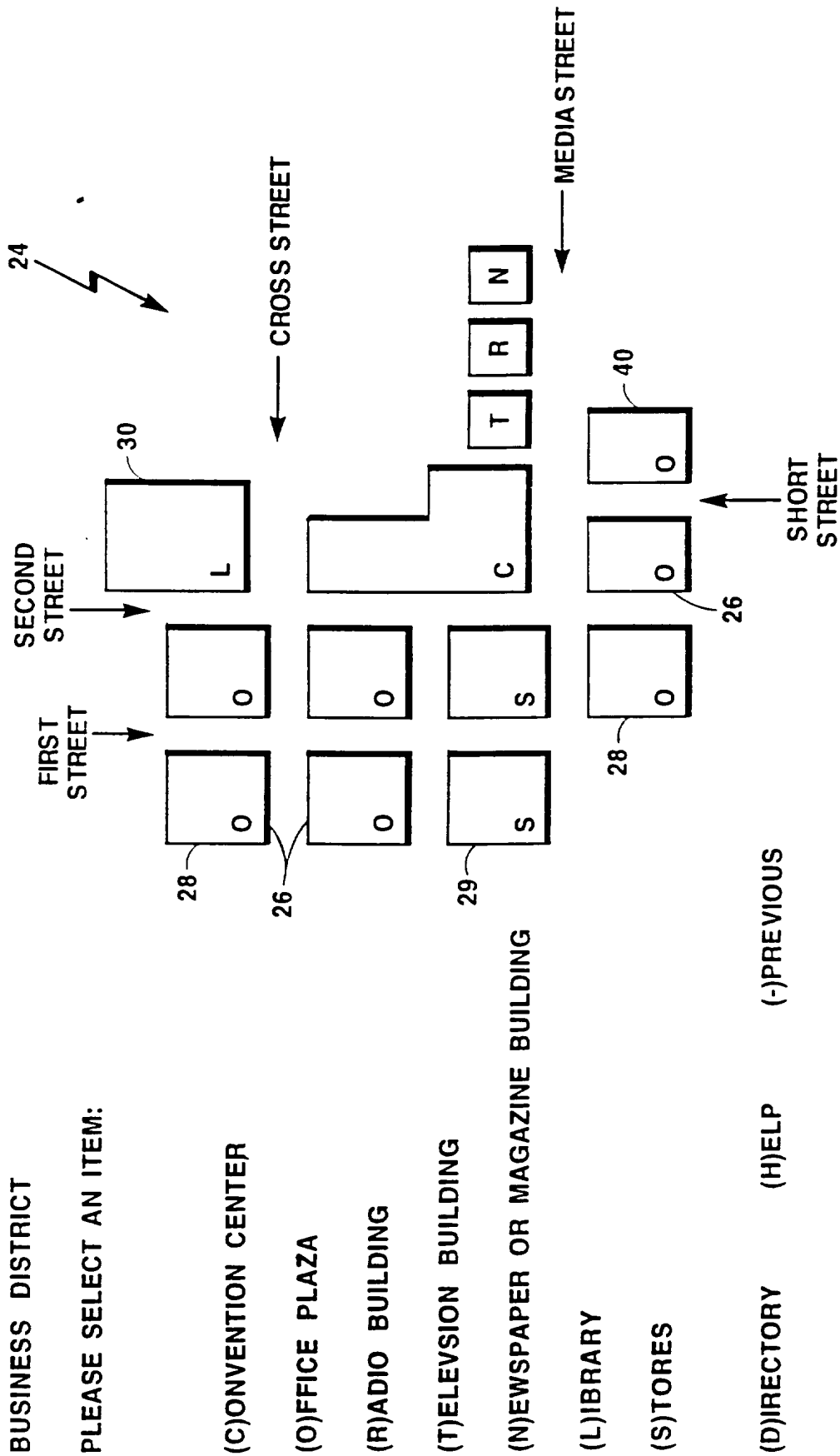
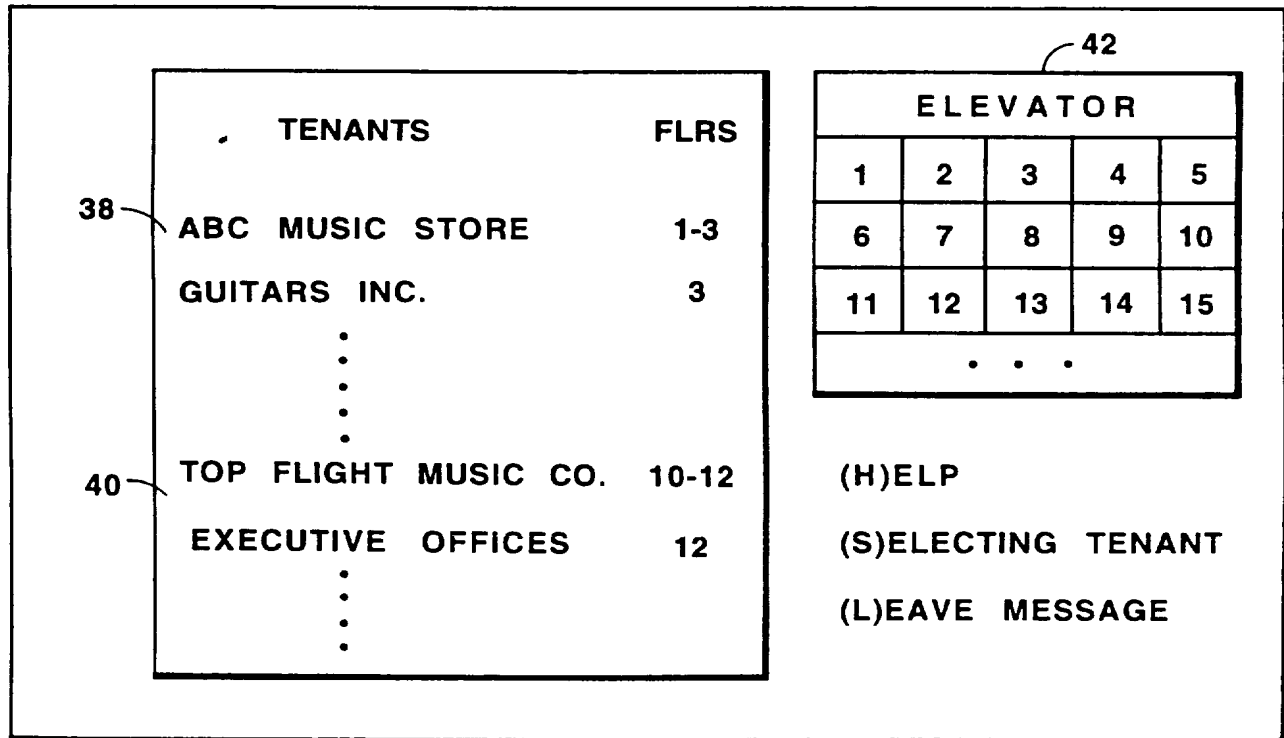
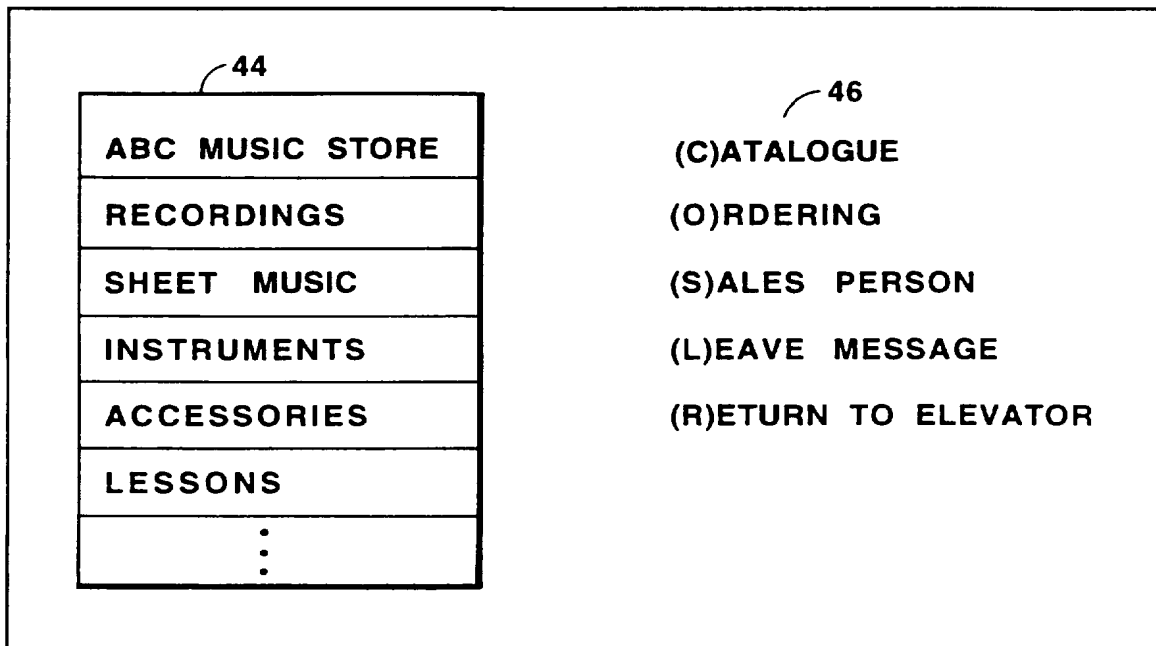


Fig.4

**Fig. 5****Fig. 6**

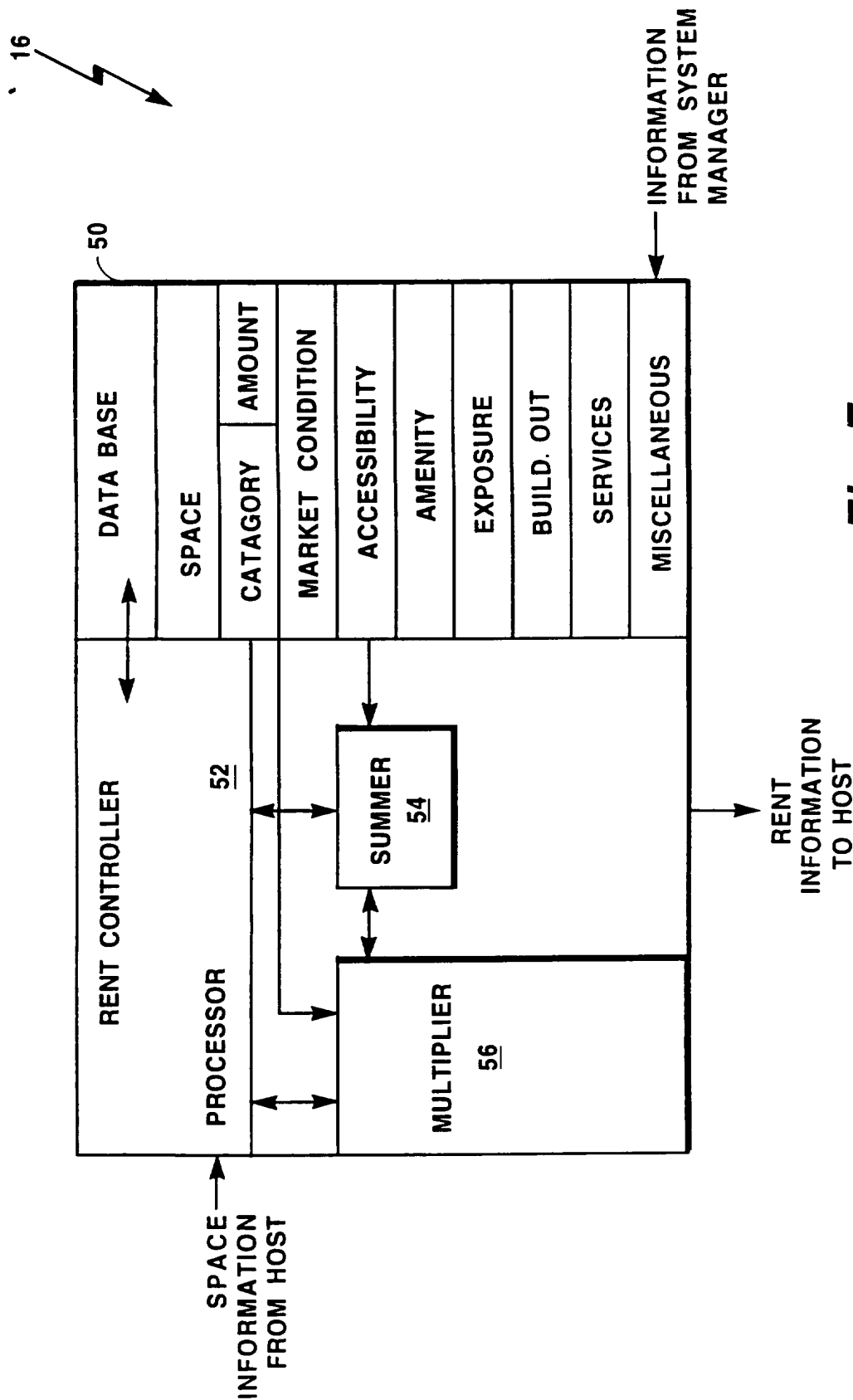


Fig. 7

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 95/10716

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP,A,0 116 327 (MINIBIT AG) 22 August 1984 see page 1, line 1 - page 4, line 6 ---	1
A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 6B, June 1994 NEW YORK, US, pages 451-460, ANONYMOUS 'Multimedia Audio on Demand' see the whole document -----	1

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

22 December 1995

Date of mailing of the international search report

11.01.96

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+ 31-70) 340-3016

Authorized officer

Fournier, C

Information on patent family members

PCT/US 95/10716

Form PCT/ISA/210 (patent family annex) (July 1992)

PUB-NO: WO009607151A1
DOCUMENT-IDENTIFIER: WO 9607151 A1
TITLE: A TECHNIQUE FOR DETERMINING
RESOURCE USAGE VALUES IN A
SYSTEM THAT PRESENTS ON-LINE
COMPUTER SERVICES AS
NAVIGABLE VIRTUAL SPACE
PUBN-DATE: March 7, 1996

INVENTOR-INFORMATION:

NAME	COUNTRY
KUSMAUL, J WESLEY	N/A

ASSIGNEE-INFORMATION:

NAME	COUNTRY
LOCAL VILLAGES INC	US

APPL-NO: US09510716

APPL-DATE: August 23, 1995

PRIORITY-DATA: US29812494A (August 30, 1994)

INT-CL (IPC): G06F017/60

EUR-CL (EPC): G06Q030/00

ABSTRACT:

CHG DATE=19990617 STATUS=O>A system for

assessing to tenants fees for renting system resources of an on-line computer system, charging rental rates that correspond to the amounts and types of resources utilized. The system presents tenant services and products to end users as a navigable "virtual village", in which tenants rent "space" in village "buildings". The space is quantified by the system provider as a number of "square bytes", that represent the system resources required to make available to a predetermined number of end users certain features associated with categories of space - i.e., offices, stores, conference rooms and so forth. The system determines for each tenant an applicable price per square byte based on a number of village factors and/or building factors. The village factors include the potential for exposure of the space and/or the tenant's name to end users entering the village, and the number of layers of graphics or menus an end user must go through to reach the tenant's space from the main village menu or graphic. The system sets a basic price per square byte for standard office or store space within the village based in part on these factors. The system then considers the building factors, such as the potential for exposure of the tenant's space to an end user entering the associated building, any special features offered by the tenant to end users entering its space, and any other factors as the system provider may determine. Based on these building factors, i.e., the underlying resources associated therewith, the system sets a price for the tenant, above the basic price. At the end of each rental period, the system determines the system resources that were utilized by each tenant, measured in terms of square bytes. It also determines, based on the amounts and types of system resources utilized, a

price per square byte. It then charges the tenant rent for that period, determined by multiplying the square bytes utilized by the price per square byte.